

EVALUATION OF A CHANGE IN OCCUPANCY FROM F-1 to R-2  
2005 CONNECTICUT STATE BUILDING CODE

PART D - International Existing Building Code

Prepared for

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The International Building Code 2003 portion of the CT State Building Code (IEBC) is alternative referenced code for application to existing buildings undergoing repair, alteration, change of occupancy, addition, or relocation. One must also apply the requirements of the CT Fire Safety Code (CFSC) to all elements of the building that are not being renovated, altered, changed occupancy or added.

*(IEBC) 101.2 Scope. The provisions of this code shall apply to the repair, alteration, change of occupancy, addition and relocation of existing buildings. A building or a portion of a building that has not been previously occupied or used for its intended purpose shall comply with the provisions of the International Building Code for new construction. Repairs, alterations, change of occupancy, existing buildings to which additions are made, historic buildings and relocated buildings complying with the provisions of the International Building Code, International Mechanical Code, International Plumbing Code and International Residential Code as applicable shall be considered in compliance with the provisions of this code.*

- I. OCCUPANCY GROUPS: **F-1 to R-2**
  - A. Some occupancies may be accessory. (IBC 302.2)
  - B. Mechanical/Boiler Room, Storage Room, etc may qualify as Incidental Use Areas. (IBC Table 302.1.1)
  - C. Occupancies will qualify as Non-Separated or Separated Mixed Occupancies (IBC 302.3)
- II. CONSTRUCTION TYPE(S): Buildings are required to be classified as one of five different categories of Construction Type. (IBC 602.1) **This building is reported to be Existing Type IV (Heavy Timber), being converted to Type III B.** (IBC 602.3, 602.4)
- III. BUILDING HEIGHT AND AREA LIMITATIONS: Building area limits are defined either by exterior walls or by fire walls. (IBC 502.1)
  - A. Existing building plus addition is **20,000** sf. Per floor, and **4** stories above grade, based on current code definitions of “story above grade.”
  - B. Building **will** be fully sprinklered, NFPA 13 automatic sprinkler system.
  - C. Base allowable height and area for most restrictive Occupancy Group **R-2** is **16,000** s.f. / **4** stories / **55** ft. per Table 503.
    - 1. Sprinkler increases allowable height by 20 ft. and stories by 1 to allow **5** stories, **75** ft. (IBC 504.2)
    - 2. Sprinkler increases allowable area by **200%** to allow **48,000** s.f. per floor. (IBC 506.3)
    - 3. **50%** open perimeter and **30** ft. separation allows another increase in area of another **25%** of the **16,000** s.f. tabular area, or an additional **4,000** s.f. added to the increased allowable area of **48,000** s.f. for a total allowable area per floor of **52,000** s.f.
- IV. Applicable “checklist” provisions of IEBC (**selected**). [Note: See full code for complete definitions, etc.]:
  - A. **Chapter 3 - Classification of Work**
    - 1. **301.1 Scope.**  
The work performed on an existing building shall be classified in accordance with this chapter.
    - 2. **301.2 Work area.**

The work area, as defined in Chapter 2, shall be identified on the construction documents.

3. **301.3 Compliance alternatives.** [Not used]

4. **301.4 Occupancy and use.**

When determining the appropriate application of the referenced sections of this code, the occupancy and use of a building shall be determined in accordance with Chapter 3 of the IBC.

5. (Repairs) **302.1 Scope.**

Repairs, as defined in Chapter 2, include the patching or restoration of materials, elements, equipment, or fixtures for the purpose of maintaining such materials, elements, equipment, or fixtures in good or sound condition.

6. (Repairs) **302.2 Application.**

Repairs shall comply with the provisions of Chapter 4.

7. (Alteration Level 1) **303.1 Scope.**

Level 1 alterations include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose.

8. (Alteration Level 3) **305.1 Scope.**

Level 3 alterations apply where the work area exceeds 50 percent of the aggregate area of the building.

9. (Alteration Level 3) **305.2 Application.**

Level 3 alterations shall comply with the provisions of Chapters 5 and 6 for Level 1 and 2 alterations, respectively, as well as the provisions of Chapter 7.

10. (Change of Occupancy) **306.1 Scope.**

Change of occupancy provisions apply where the activity is classified as a change of occupancy as defined in Chapter 2.

11. (Change of Occupancy) **306.2 Application.**

Changes of occupancy shall comply with the provisions of Chapter 8.

12. (Additions) **307.1 Scope.**

Provisions for additions shall apply where work is classified as an addition as defined in Chapter 2.

13. (Additions) **307.2 Application.**

Additions to existing buildings shall comply with the provisions of Chapter 9.

14. (Historic Buildings) **308.1 Scope.**

Historic buildings provisions shall apply to buildings classified as historic as defined in Chapter 2.

15. (Historic Buildings) **308.2 Application.**

Except as specifically provided for in Chapter 10, historic buildings shall comply with applicable provisions of this code for the type of work being performed.

**B. Chapter 10 - Historic Buildings:**

1. **1001.1 Scope.**

It is the intent of this chapter to provide means for the preservation of historic buildings. Historical buildings shall comply with the provisions of this chapter relating to their repair, alteration, relocation and change of occupancy.

2. **1001.2 Report.**

A historic building undergoing repair, alteration, or change of occupancy shall be investigated and evaluated. If it is intended that the building meet the requirements of this chapter, a written report shall be prepared and filed with the code official by a registered design professional when such a report is necessary

in the opinion of the code official. Such report shall be in accordance with Chapter 1 and shall identify:

1. Each required safety feature that is in compliance with the provisions of this chapter.
  2. Where compliance with provisions of other chapters would damage the contributing historic character or contributing historic features.
- a. **1001.2.1 Compliance.** For purposes of compliance with Section 104.3, NFPA 914, Code for Fire Protection in Historic Structures, and NFPA 101A, Alternative Approaches to Life Safety, may be used.
3. **1001.3 Special occupancy exceptions.** Historic buildings used for purposes such as museums, libraries, exhibits and similar uses less than 3,500 square feet (325.5 m<sup>2</sup>) per floor and under four stories in height, shall be regulated as a Group B occupancy. Adequate means of egress shall be provided and shall, as applicable, include:
  1. A means of maintaining doors in an open position to permit egress,
  2. A limit on building occupancy to an occupant load permitted by the means of egress capacity,
  3. A limit on occupancy of certain areas or floors, or
  4. Supervision by a person knowledgeable in the emergency exiting procedures.
4. (Repairs) **1002.1 General.**  
Repairs to any portion of a historic building or structure shall be permitted with original or like materials and original methods of construction, subject to the provisions of this chapter.
5. (Repairs) **1002.2 Dangerous buildings.**  
When a historic building is determined to be dangerous, no work shall be required except as necessary to correct identified unsafe conditions.
6. (Repairs) **1002.4 Chapter 4 compliance.**  
Historic buildings undergoing repairs shall comply with all of the applicable requirements of Chapter 4, except as specifically permitted in this chapter.
7. (Repairs) **1002.5 Replacement.**  
Replacement of existing or missing features using original materials shall be permitted. Partial replacement for repairs that match the original in configuration, height, and size shall be permitted. Such replacements shall not be required to meet the materials and methods requirements of Section 401.2.  
Exception: Replacement glazing in hazardous locations shall comply with the safety glazing requirements of Chapter 24 of the IBC.
8. (Fire Safety) **1003.1 Scope.**  
Historic buildings undergoing alterations, changes of occupancy, or that are moved shall comply with Section 1003.
9. (Fire Safety) **1003.2 General.**  
Every historic building that does not conform to the construction requirements specified in this code for the occupancy or use and that constitutes a distinct fire hazard as defined herein shall be provided with an approved automatic fire-extinguishing system as determined appropriate by the code official. However, an automatic fire-extinguishing system shall not be used to substitute for, or act as an alternative to, the required number of exits from any facility.
10. (Fire Safety) **1003.3 Means of egress.**  
Existing door openings and corridor and stairway widths less than those specified elsewhere in this code may be approved, provided that, in the opinion

of the code official, there is sufficient width and height for a person to pass through the opening or traverse the means of egress. When approved by the code official, the front or main exit doors need not swing in the direction of the path of exit travel, provided that other approved means of egress having sufficient capacity to serve the total occupant load are provided.

11. (Fire Safety) **1003.5 Interior finishes.**  
The existing finishes of walls and ceilings shall be accepted when it is demonstrated that they are the historic finishes.
12. (Fire Safety) **1003.6 Stairway enclosure.**  
In buildings of three stories or less, exit enclosure construction shall limit the spread of smoke by the use of tight-fitting doors and solid elements. Such elements are not required to have a fire-resistance rating.
13. (Fire Safety) **1003.7 One-hour fire-resistant assemblies.**  
Where 1-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood or metal lath and plaster.
14. (Fire Safety) **1003.8 Glazing in fire-resistance-rated systems.**  
Historic glazing materials in interior walls required to have a 1-hour fire-resistance rating may be permitted when provided with approved smoke seals and when the area affected is provided with an automatic sprinkler system.
15. (Fire Safety) **1003.9 Stairway railings.**  
Grand stairways shall be accepted without complying with the handrail and guard requirements. Existing handrails and guards at all stairs shall be permitted to remain, provided they are not structurally dangerous.
16. (Fire Safety) **1003.10 Guards.**  
Guards shall comply with Sections 1003.10.1 and 1003.10.2.
  - 1003.10.1 Height.**  
Existing guards shall comply with the requirements of Section 405.
  - 1003.10.2 Guard openings.**  
The spacing between existing intermediate railings or openings in existing ornamental patterns shall be accepted. Missing elements or members of a guard may be replaced in a manner that will preserve the historic appearance of the building or structure.
17. (Fire Safety) **1003.11 Exit signs.**  
Where exit sign or egress path marking location would damage the historic character of the building, alternative exit signs are permitted with approval of the code official. Alternative signs shall identify the exits and egress path.
18. (Fire Safety) **1003.12 Automatic fire-extinguishing systems.**
  - 1003.12.1 General.**  
Every historical building that can not be made to conform to the construction requirements specified in the International Building Code for the occupancy or use and that constitutes a distinct fire hazard shall be deemed to be in compliance if provided with an automatic fire-extinguishing system.
    - Exception: When the code official approves an alternative life-safety system
19. (Alterations) **1004.1 Accessibility requirements.**  
The provisions of Section 506 shall apply to buildings and facilities designated as historic structures that undergo alterations, unless technically infeasible. Where compliance with the requirements for accessible routes, ramps, entrances,

or toilet facilities would threaten or destroy the historic significance of the building or facility, as determined by the code official, the alternative requirements of Sections 1004.1.1 through 1004.1.5 for that element shall be permitted.

**1004.1.1 Site arrival points.**

At least one main entrance shall be accessible.

**1004.1.2 Multilevel buildings and facilities.**

An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.

**1004.1.3 Entrances.**

At least one main entrance shall be accessible.

Exceptions:

1. If a main entrance cannot be made accessible, an accessible nonpublic entrance that is unlocked while the building is occupied shall be provided; or
2. If a main entrance cannot be made accessible, a locked accessible entrance with a notification system or remote monitoring shall be provided.

**1004.1.4 Toilet and bathing facilities.**

Where toilet rooms are provided, at least one accessible toilet room shall be provided for each sex, or a unisex toilet room complying with Section 1109.2.1 of the IBC shall be provided.

**1004.1.5 Ramps.**

The slope of a ramp run of 24 inches (610 mm) maximum shall not be steeper than one unit vertical in eight units horizontal (12-percent slope).

20. (Change of Occupancy) **1005.1 General.**  
Historic buildings undergoing a change of occupancy shall comply with the applicable provisions of Chapter 8, except as specifically permitted in this chapter. When Chapter 8 requires compliance with specific requirements of Chapter 4, Chapter 5, or Chapter 6 and when those requirements are subject to the exceptions in Section 1002, the same exceptions shall apply to this section.
21. (Change of Occupancy) **1005.2 Building area.**  
The allowable floor area for historic buildings undergoing a change of occupancy shall be permitted to exceed by 20 percent the allowable areas specified in Chapter 5 of the IBC.
22. (Change of Occupancy) **1005.3 Location on property.**  
Historic structures undergoing a change of use to a higher hazard category in accordance with Section 812.4.3 may use alternative methods to comply with the fire resistance and exterior opening protective requirements. Such alternatives shall comply with Section 1001.2.
23. (Change of Occupancy) **1005.4 Occupancy separation.**  
Required occupancy separations of 1 hour may be omitted when the building is provided with an approved automatic sprinkler system throughout.
24. (Change of Occupancy) **1005.5 Roof covering.**  
Regardless of occupancy or use group, roof-covering materials not less than Class C shall be permitted where a fire-retardant roof covering is required.
25. (Change of Occupancy) **1005.6 Means of egress.**  
Existing door openings and corridor and stairway widths less than those that would be acceptable for nonhistoric buildings under these provisions shall be approved, provided that, in the opinion of the code official, there is sufficient

- width and height for a person to pass through the opening or traverse the exit and that the capacity of the exit system is adequate for the occupant load, or where other operational controls to limit occupancy are approved by the code official.
26. (Change of Occupancy) **1005.7 Door swing.**  
When approved by the code official, existing front doors need not swing in the direction of exit travel, provided that other approved exits having sufficient capacity to serve the total occupant load are provided.
27. (Change of Occupancy) **1005.9 Finishes.**  
Where finish materials are required to have a flame-spread classification of Class III or better, existing nonconforming materials shall be surfaced with an approved fire-retardant paint or finish.  
Exception: Existing nonconforming materials need not be surfaced with an approved fire-retardant paint or finish where the building is equipped throughout with an automatic fire-suppression system installed in accordance with the IBC and the nonconforming materials can be substantiated as being historic in character.
28. (Change of Occupancy) **1005.10 One-hour fire-resistant assemblies.**  
Where 1-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood lath and plaster.
29. (Change of Occupancy) **1005.11 Stairs and railings.**  
Existing stairways shall comply with the requirements of these provisions. The code official shall grant alternatives for stairways and railings if alternative stairways are found to be acceptable or are judged to meet the intent of these provisions. Existing stairways shall comply with Section 1003.  
Exception: For buildings less than 3000 square feet (279 m<sup>2</sup>), existing conditions are permitted to remain at all stairs and rails.
30. (Change of Occupancy) **1005.12 Exit signs.**  
The code official may accept alternative exit sign locations where such signs would damage the historic character of the building or structure. Such signs shall identify the exits and exit path.
31. (Change of Occupancy) **1005.13 Exit stair live load.**  
Existing historic stairways in buildings changed to a Group R-1 or R-2 occupancy shall be accepted where it can be shown that the stairway can support a 75-pounds-per-square-foot (366 kg/m<sup>2</sup>) live load.
32. (Change of Occupancy) **1005.14 Natural light.**  
When it is determined by the code official that compliance with the natural light requirements of Section 811.1.1 will lead to loss of historic character or historic materials in the building, the existing level of natural lighting shall be considered acceptable.
33. (Change of Occupancy) **1005.15 Accessibility requirements.**  
The provisions of Section 812.5 shall apply to buildings and facilities designated as historic structures that undergo a change of occupancy, unless technically infeasible. Where compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, as determined by the authority having jurisdiction, the alternative requirements of Sections 1004.1.1 through 1004.1.5 for those elements shall be permitted.
34. (Structural) **1006.1 General.**

Historic buildings shall comply with the applicable structural provisions for the work as classified in Chapter 3.

Exception: The code official shall be authorized to accept existing floors and approve operational controls that limit the live load on any such floor.

35. (Structural) **1006.2 Unsafe structural elements.**

Where the code official determines that a component or a portion of a building or structure is dangerous as defined in this code and is in need of repair, strengthening, or replacement by provisions of this code, only that specific component or portion shall be required to be repaired, strengthened, or replaced.

C. **Chapter 9 - Additions:**

1. **901.2 Creation or extension of nonconformity.**

An addition shall not create or extend any nonconformity in the existing building to which the addition is being made with regard to accessibility, structural strength, fire safety, means of egress, or the capacity of mechanical, plumbing, or electrical systems.

2. **901.3 Other work.**

Any repair or alteration work within an existing building to which an addition is being made shall comply with the applicable requirements for the work as classified in Chapter 3.

3. **902.1 Height Limitations.**

No addition shall increase the height of an existing building beyond that permitted under the applicable provisions of Chapter 5 of the IBC for new buildings.

4. **902.2 Area limitations.**

No addition shall increase the area of an existing building beyond that permitted under the applicable provisions of Chapter 5 of the International Building Code for new buildings unless fire separation as required by the International Building Code is provided.

Exception: In-filling of floor openings and nonoccupiable appendages such as elevator and exit stair shafts shall be permitted beyond that permitted by the International Building Code.

5. (Structural) **903.1 Compliance with the International Building Code.**

Additions to existing buildings or structures are new construction and shall comply with the International Building Code.

6. (Structural) **903.3 Lateral-force-resisting system.**

The lateral-force-resisting system of existing buildings to which additions are made shall comply with Sections 903.3.1, 903.3.2, and 903.3.3.

Exceptions:

1. In Type V construction, Group R occupancies where the lateral-force story shear in any story is not increased by more than 10 percent.
2. Buildings of Group R occupancy with no more than five dwelling units or sleeping units used solely for residential purposes where the existing building and the addition comply with the conventional light-frame construction methods of the IBC or the provisions of the IRC.
3. Additions where the lateral-force story shear in any story is not increased by more than 5 percent.

7. (Structural) **903.3.1 Vertical addition.**



Any element of the lateral-force-resisting system of an existing building subjected to an increase in vertical or lateral loads from the vertical addition shall comply with the lateral load provisions of the IBC .

8. (Structural) **903.3.2 Horizontal addition.**  
Where horizontal additions are structurally connected to an existing structure, all lateral-force-resisting elements of the existing structure affected by such addition shall comply with the lateral load provisions of the IBC. Lateral loads imposed on the elements of the existing structure and the addition shall be determined by a relative stiffness analysis of the combined structure including torsional effects.
9. (Structural) **903.4 Snow drift loads.**

Any structural element of an existing building subjected to additional loads from the effects of snow drift as a result of an addition shall comply with the IBC.

Exceptions:

1. Structural elements whose stress is not increased by more than 5 percent.
  2. Buildings of Group R occupancy with no more than five dwelling units or sleeping units used solely for residential purposes where the existing building and the addition comply with the conventional light-frame construction methods of the IBC or the provisions of the IRC.
- 10 (Accessibility) **905.1 Minimum requirements.**  
Accessibility provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, primary function shall comply with the requirements of Section 506.2 for accessible routes.

#### **D. Chapter 8 - Change of Occupancy:**

1. (General) **801.2 Partial change of occupancy group.**  
Where a portion of an existing building is changed to a new occupancy group, Section 812 shall apply.
2. (Fire Protection) **804.1 General.**  
Fire protection requirements of Section 812 shall apply where a building or portions thereof undergo a change of occupancy classification.
4. (Structural) **807.1 Gravity loads.**  
Buildings or portions thereof subject to a change of occupancy where such change in the nature of occupancy results in higher uniform or concentrated loads based on Tables 1607.1 and 1607.6 of the IBC shall comply with the gravity load provisions of the IBC.  
Exception: Structural elements whose stress is not increased by more than 5 percent.
5. (Structural) **807.2 Snow and wind loads.**  
Buildings and structures subject to a change of occupancy where such change in the nature of occupancy results in higher wind or snow importance factors based on Table 1604.5 of the International Building Code shall be analyzed and shall comply with the applicable wind or snow load provisions of the IBC.  
Exception: Where the new occupancy with a higher importance factor is less than or equal to 10 percent of the total building floor area. The cumulative effect of the area of occupancy changes shall be considered for the purposes of this exception.

6. (Structural) **807.3 Seismic loads.**  
Existing buildings with a change of occupancy shall comply with the seismic provisions of Sections 807.3.1 and 807.3.2.
7. (Electrical) **808.1 Special occupancies.**  
Where the occupancy of an existing building or part of an existing building is changed to one of the following special occupancies as described in NFPA 70, the electrical wiring and equipment of the building or portion thereof that contains the proposed occupancy shall comply with the applicable requirements of NFPA 70 whether or not a change of occupancy group is involved:
  1. Hazardous locations.
  2. Commercial garages, repair, and storage.
  3. Aircraft hangars.
  4. Gasoline dispensing and service stations.
  5. Bulk storage plants.
  6. Spray application, dipping, and coating processes.
  7. Health care facilities.
  8. Places of assembly.
  9. Theaters, audience areas of motion picture and television studios, and similar locations.
  10. Motion picture and television studios and similar locations.
  11. Motion picture projectors.
  12. Agricultural buildings.
8. (Electrical) **808.2 Unsafe conditions.**  
Where the occupancy of an existing building or part of an existing building is changed, all unsafe conditions shall be corrected without requiring that all parts of the electrical system be brought up to the current edition of NFPA 70.
9. (Electrical) **808.3 Service upgrade.**  
Where the occupancy of an existing building or part of an existing building is changed, electrical service shall be upgraded to meet the requirements of NFPA 70 for the new occupancy.
10. (Electrical) **808.4 Number of electrical outlets.**  
Where the occupancy of an existing building or part of an existing building is changed, the number of electrical outlets shall comply with NFPA 70 for the new occupancy.
11. (Mechanical) **809.1 Mechanical requirements.**  
Where the occupancy of an existing building or part of an existing building is changed such that the new occupancy is subject to different kitchen exhaust requirements or to increased mechanical ventilation requirements in accordance with the IMC, the new occupancy shall comply with the intent of the respective IMC provisions.
12. (Plumbing) **810.1 Increased demand.**  
Where the occupancy of an existing building or part of an existing building is changed such that the new occupancy is subject to increased or different plumbing fixture requirements or to increased water supply requirements in accordance with the IPC, the new occupancy shall comply with the intent of the respective IPC provisions.
13. (Plumbing) **810.2 Food handling occupancies.**  
If the new occupancy is a food handling establishment, all existing sanitary waste lines above the food or drink preparation or storage areas shall be panned or otherwise protected to prevent leaking pipes or condensation on pipes from

contaminating food or drink. New drainage lines shall not be installed above such areas and shall be protected in accordance with the IPC.

14. (Plumbing) **810.3 Interceptor required.**

If the new occupancy will produce grease or oil-laden wastes, interceptors shall be provided as required in the IPC.

15. (Light & Ventilation) **811.1 Light and ventilation.**

Light and ventilation shall comply with the requirements of the IBC for the new occupancy.

16. (Change of Occupancy) **812.1 Compliance with Chapter 7** (Alterations Level 3).

The occupancy classification of an existing building may be changed, provided that the building meets all of the requirements of Chapter 7 applied throughout the building for the new occupancy group and complies with the requirements of Sections 802 through 812.

17. (Change of Occupancy) **812.2 Hazard category classifications.**

The relative degree of hazard between different occupancy groups shall be as set forth in the hazard category classifications specified in Tables 812.4.1, 812.4.2, and 812.4.3 of Sections 812.4.1, 812.4.2, and 812.4.3.

TABLE 812.4.1 HAZARD CATEGORIES AND CLASSIFICATIONS:  
LIFE SAFETY AND EXITS

Relative Hazard	Occupancy Classification
1 (Highest Hazard)	H
2	I-2, I-3, I-4
3	A, E, I-1, M, R-1, <b><u>R-2</u></b> , R-4
4	B, <b><u>F-1</u></b> , R-3, S-1
5 (Lowest Hazard)	F-2, S-2, U

Table 812.4.2 HAZARD CATEGORIES AND CLASSIFICATIONS:  
HEIGHTS AND AREAS

Relative Hazard	Occupancy Classification
1 (Highest Hazard)	H
2	A-1, A-2, A-3, A-4, I, R-1, <b><u>R-2</u></b> , R-4
3	E, <b><u>F-1</u></b> , S-1, M
4 (Lowest Hazard)	B, F-2, S-2, A-5, R-3, U

Table 812.4.3 HAZARD CATEGORIES AND CLASSIFICATIONS:  
EXPOSURE OF EXTERIOR WALLS

Relative Hazard	Occupancy Classification
1 (Highest Hazard)	H
2	<b><u>F-1</u></b> , M, S-1
3	A, B, E, I, <b><u>R</u></b>
4 (Lowest Hazard)	F-2, S-2, U

18. **812.2.1 Change of occupancy classification to an equal or lesser hazard.**  
An existing building or portion thereof may have its use changed to an occupancy group within the same hazard classification category or to an occupancy group within a lesser hazard classification category (higher number) in all (three) hazard category classifications, provided it complies with the provisions of Chapter 7 for the new occupancy group, applied throughout the building or portion thereof.  
Exception: Compliance with all the provisions of Chapter 7 is not required where the change of occupancy group complies with the requirements of Section 812.3.
19. **812.2.2 Change of occupancy classification to a higher hazard.**  
An existing building shall comply with all of the applicable requirements of this chapter when a change in occupancy group places it in a higher hazard category or when the occupancy group is changed within Group H.
20. **812.2.3 Change of occupancy classification to a higher hazard in all hazard classifications.**  
An existing building may have its use changed to a higher hazard rating (lower number) in all three hazard category classifications designated in Tables 812.4.1, 812.4.2, and 812.4.3, provided it complies with this chapter or with Chapter 12.
21. **812.3 Change of occupancy classification to an equal or lesser hazard in all three hazard classifications.**  
A change of use to an occupancy group within the same hazard classification category or to an occupancy group within a lesser hazard classification category (higher number) in the three hazard category classifications addressed by Tables 812.4.1, 812.4.2, and 812.4.3 shall be permitted in an existing building or portion thereof, provided the provisions of Sections 812.3.1 through 812.3.5 are met.
22. **812.3.1 Minimum requirements.**  
Regardless of the occupancy group involved, the following requirements shall be met:
1. The capacity of the means of egress shall comply with the IBC.
  2. The interior finish of walls and ceilings shall comply with the requirements of the IBC for the new occupancy group.
23. (Change of Occupancy) **812.4 Fire and life safety.**  
The fire and life safety provisions of this section shall be applicable to buildings or portions of buildings undergoing a change of occupancy classification.
24. **812.4.1 Means of egress, general.**  
Hazard categories in regard to life safety and means of egress shall be in accordance with Table 812.4.1
25. **812.4.1.1 Means of egress for change to higher hazard category.**  
**When a change of occupancy group is made to a higher hazard category (lower number) as shown in Table 812.4.1, the means of egress shall comply with the requirements of Chapter 10 of the IBC.**  
Exceptions:
1. Stairways shall be enclosed in compliance with the applicable provisions of Section 703.1.
  2. Existing stairways including handrails and guards complying with the requirements of Chapter 7 shall be permitted for continued use subject to approval of the code official.

3. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
4. Existing corridor walls constructed of wood lath and plaster in good condition or ½ -inch thick (12.7 mm) gypsum wallboard shall be permitted.
5. Existing corridor doorways, transoms, and other corridor openings shall comply with the requirements in Sections 605.5.1, 605.5.2, and 605.5.3.
6. Existing dead-end corridors shall comply with the requirements in Section 605.6.
7. An existing operable window with clear opening area no less than 4 square feet (0.38 m<sup>2</sup>) and with minimum opening height or width of 22 inches (559 mm), respectively, shall be accepted as an emergency escape and rescue opening.

26. **812.4.1.2 Means of egress for change of use to equal or lower hazard category.**

When a change of occupancy group is made to an equal or lesser hazard category (higher number) as shown in Table 812.4.1, existing elements of the means of egress shall comply with the requirements of Section 705 for the new occupancy group. Newly constructed or configured means of egress shall comply with the requirements of Chapter 10 of the IBC.

Exceptions:

1. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
2. Compliance with Section 705 is not required where the change of occupancy group complies with the requirements of Section 812.3.

27. **812.4.1.3 Egress capacity.**

Egress capacity shall meet or exceed the occupant load as specified in the IBC if the change of occupancy classification is to an equal or lesser hazard category when evaluated in accordance with Table 812.4.1.

28. **812.4.1.4 Handrails.**

Existing stairways shall comply with the handrail requirements of Section 605.9 in the area of the change of occupancy classification.

29. **812.4.1.5 Guards.**

Existing guards shall comply with the requirements in Section 605.10 in the area of the change of occupancy classification.

30. (Height and Areas) **812.4.2 Heights and areas.**

Hazard categories in regard to height and area shall be in accordance with Table 812.4.2.

31. **812.4.2.1 Height and area for change to higher hazard category.**

**When a change of occupancy group is made to a higher hazard category as shown in Table 812.4.2, heights and areas of buildings and structures shall comply with the requirements of Chapter 5 of the IBC for the new occupancy group.**

Exception: A one-story building changed to Group E occupancy shall not be required to meet the area limitations of the IBC.

32. **812.4.2.2 Height and area for change to equal or lesser hazard category.**  
When a change of occupancy group is made to an equal or lesser hazard category as shown in Table 812.4.2, the height and area of the existing building shall be deemed acceptable.
33. **812.4.2.3 Fire barriers.**  
**When a change of occupancy group is made to a higher hazard category as shown in Table 812.4.2, fire barriers in separated mixed-use buildings shall comply with the fire resistance requirements of the IBC.**  
Exception: Where the fire barriers are required to have a 1-hour fire-resistance rating, existing wood lath and plaster in good condition or existing 1 / 2 inch-thick (12.7 mm) gypsum wallboard shall be permitted.
34. **812.4.3 Exterior wall fire-resistance ratings.**  
Hazard categories in regard to fire-resistance ratings of exterior walls shall be in accordance with Table 812.4.3.
35. **812.4.4 Enclosure of vertical shafts.**  
Enclosure of vertical shafts shall be in accordance with Sections 812.4.4.1 through 812.4.4.4.
36. **812.5 Accessibility.**  
Existing buildings or portions thereof that undergo a change of group or occupancy classification shall have all of the following accessible features:
1. At least one accessible building entrance.
  2. At least one accessible route from an accessible building entrance to primary function areas.
  3. Signage complying with Section 1110 of the 2003 International Building Code.
  4. Accessible parking, where parking is provided.
  5. At least one accessible passenger loading zone, where passenger loading zones are provided.
  6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.
  7. At least one accessible toilet room or toilet and bathing facility per gender complying with Section 1109.2 of the 2003 International Building Code.
  8. At least one accessible means of egress complying with Section 1007 of the 2003 International Building Code.
  9. Type A and Type B units as required by Section 1107 of the 2003 International Building Code.
- Where it is technically infeasible to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible. Changes of group or occupancy that incorporate any alterations or additions shall comply with this section and Sections 506.1, 606.1 and 905.1 as applicable.

E. **Chapter 7 - Alterations - Level 3**

1. (General) **701.1 Scope.**  
Level 3 alterations as described in Section 305 shall comply with the requirements of this chapter.
2. (General) **701.2 Compliance.**  
In addition to the provisions of this chapter, work shall comply with all of the requirements of Chapters 5 and 6. The requirements of Sections 603, 604, and

605 shall apply within all work areas whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.

Exception: Buildings in which the reconfiguration of space affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section 506.2 shall not be required to comply with this chapter.

3. (Building Elements and Materials) **703.1 Existing shafts and vertical openings.**  
Existing stairways that are part of the means of egress shall be enclosed in accordance with Section 603.2.1 between the highest work area floor and the level of exit discharge and all floors below.
4. (Building Elements and Materials) **703.3 Interior finish.**  
Interior finish in exits serving the work area shall comply with Section 603.4 between the highest floor on which there is a work area to the floor of exit discharge.
5. (Fire Protection) **704.1 Automatic sprinkler systems.**  
Automatic sprinkler systems as required and in accordance with the IBC shall be provided in all work areas.
6. (Fire Protection) **704.2 Fire alarm and detection systems.**  
Fire alarm and detection systems complying with Sections 604.4.1 and 604.4.3 shall be provided throughout the building in accordance with the IBC.
7. (Means of Egress) **705.1 General.**  
The means of egress shall comply with the requirements of Section 605 except as specifically required in Sections 705.2 and 705.3.
8. (Means of Egress) **705.2 Means-of-egress lighting.**  
Means of egress from the highest work area floor to the floor of exit discharge shall be provided with artificial lighting within the exit enclosure in accordance with the requirements of the IBC.
9. (Means of Egress) **705.3 Exit signs.**  
Means of egress from the highest work area floor to the floor of exit discharge shall be provided with exit signs in accordance with the requirements of the IBC.
10. (Accessibility) **706.1 General.**  
A building, facility, or element that is altered shall comply with Section 506.
11. (Structural) **707.1 General.**  
Where buildings are undergoing Level 3 alterations including structural alterations, the provisions of this section shall apply. Seismic provisions of this chapter shall apply only to buildings built after January 1, 2003, except parapet bracing referred to in Section 707.8 shall apply to all buildings undergoing Level 3 alterations
12. (Structural) **707.2 Reduction of strength.**  
Alterations shall not reduce the structural strength or stability of the building, structure, or any individual member thereof.  
Exception: Such reduction shall be allowed provided that the structural strength and the stability of the building are not reduced to below the IBC levels.
13. (Structural) **707.3 New structural members.**  
New structural members in alterations, including connections and anchorage, shall comply with the IBC.
14. (Structural) **707.4 Minimum design loads.**

The minimum design loads on existing elements of a structure that do not support additional loads as a result of an alteration shall be the loads applicable at the time the building was constructed.

15. (Structural) **707.5 Structural alterations.**

Buildings and structures undergoing structural alterations or buildings in which the seismic base shear is increased by more than 5 percent because of alterations shall comply with this section.

16. **707.5.1 Evaluation and analysis.**

An engineering evaluation and analysis that establishes the structural adequacy of the altered structure shall be prepared by a registered design professional and submitted to the code official. Where more than 30 percent of the total floor and roof areas of the building or structure has been or is proposed to be involved in structural alteration within a 12-month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the IBC for wind loading and with reduced IBC level seismic forces as specified in Section 407.1.1.3 for seismic loading. For seismic considerations, the analysis shall be based on one of the procedures specified in Section 407.1.1.1. The areas to be counted toward the 30 percent shall be those areas tributary to the vertical load-carrying components such as joists, beams, columns, walls, and other structural components that have been or will be removed, added, or altered, as well as areas such as mezzanines, penthouses, roof structures, and in-filled courts and shafts.

Exceptions:

1. Buildings of Group R occupancy with no more than five dwelling units or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the IBC or in compliance with the provisions of the International Residential Code.
2. Where such alterations involve only the lowest story of a building and the change of occupancy provisions of Chapter 8 do not apply, only the lateral-force-resisting components in and below that story need comply with this section.

17. **707.5.2 Limited structural alteration.**

Where not more than 30 percent of the total floor and roof areas of the building is involved in structural alteration within a 12-month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the loads applicable at the time the building was constructed.

18. (Structural) **707.6 Additional vertical loads.**

Where gravity loading is increased on the roof or floor of a building or structure, all structural members affected by such increase shall meet the gravity load requirements of the IBC.

Exceptions:

1. Structural elements whose stress is not increased by more than 5 percent.
2. Buildings of Group R occupancy with no more than five dwelling units or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the IBC or in compliance with the provisions of the International Residential Code.

19. (Structural) **707.7 Voluntary lateral-force-resisting system alterations.**

Alterations of existing structural elements that are initiated for the purpose of increasing the lateral-force-resisting strength or stiffness of an existing structure



and that are not required by other sections of this code shall not be required to be designed for forces conforming to the IBC provided that an engineering analysis is submitted to show that:

1. The capacity of existing structural elements required to resist forces is not reduced;
2. The lateral loading to existing structural elements is not increased beyond their capacity;
3. New structural elements are detailed and connected to the existing structural elements as required by the IBC;
4. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the IBC; and
5. A dangerous condition as defined in this code is not created.

Voluntary alterations to lateral-force-resisting systems conducted in accordance with Appendix A and the referenced standards of this code shall be permitted.

**F. Chapter 6 - Alterations -Level 2**

**1. (General) 601.1 Scope**

Level 2 alterations as described in Section 304 shall comply with the requirements of this chapter.

Exception: Buildings in which the reconfiguration is exclusively the result of compliance with the accessibility requirements of Section 506.2 shall be permitted to comply with Chapter 5.

**2. (General) 601.2 Alteration Level 1 Compliance**

In addition to the requirements of this chapter, all work shall comply with the requirements of Chapter 5.

**3. (General) 601.3 Compliance.**

All new construction elements, components, systems, and spaces shall comply with the requirements of the IBC.

Exceptions:

1. Windows may be added without requiring compliance with the light and ventilation requirements of the IBC.
2. Newly installed electrical equipment shall comply with the requirements of Section 608.
3. The length of dead-end corridors in newly constructed spaces shall only be required to comply with the provisions of Section 605.6.
4. The minimum ceiling height of the newly created habitable and occupiable spaces and corridors shall be 6 feet 8 inches (2032 mm).  
Basement spaces of Type R, M, B and S can have a ceiling height of not less than 6 feet 4 inches (1930.4 mm) of clear height under beams, girders, ducts and similar obstructions, provided no more than 30 percent of the floor area is below 6 feet 8 inches (2302 mm) and the basement is limited to one story below grade..

**4. (Special Use and Occupancy) 602.1 General.**

Alteration of buildings classified as special use and occupancy as described in the IBC shall comply with the requirements of Section 601.1 and the scoping provisions of Chapter 1 where applicable.

**5. (Building Elements and Materials) 603.1 Scope.**

The requirements of this section are limited to work areas in which Level 2 alterations are being performed, and shall apply beyond the work area where specified.

6. (Building Elements and Materials) **603.2 Vertical openings.**

Existing vertical openings shall comply with the provisions of Sections 603.2.1, 603.2.2, and 603.2.3.

**603.2.1 Existing vertical openings.**

All existing interior vertical openings connecting two or more floors shall be enclosed with approved assemblies having a fire-resistance rating of not less than 1 hour with approved opening protectives.

**Exceptions:**

1. Where vertical opening enclosure is not required by the IBC or the International Fire Code.
2. Interior vertical openings other than stairways may be blocked at the floor and ceiling of the work area by installation of not less than 2 inches (51 mm) of solid wood or equivalent construction.
3. The enclosure shall not be required where:
  - 3.1. Connecting the main floor and mezzanines; or 3.1. All of the following conditions are met:
    - 3.1.1. The communicating area has a low hazard occupancy or has a moderate hazard occupancy that is protected throughout by an automatic sprinkler system.
    - 3.1.2. The lowest or next to the lowest level is a street floor.
    - 3.1.3. The entire area is open and unobstructed in a manner such that it may be assumed that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants.
    - 3.1.4. Exit capacity is sufficient to provide egress simultaneously for all the occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity.
    - 3.1.5. Each floor level, considered separately, has at least one half of its individual required exit capacity provided by an exit or exits leading directly out of that level without having to traverse another communicating floor level or be exposed to the smoke or fire spreading from another communicating floor level.

[Exceptions 4-10 not shown]

11. In Group R-2 occupancies, a minimum 30 minute enclosure shall be provided to protect all vertical openings not exceeding three stories. This enclosure, or the enclosure specified in Section 603.2.1, shall not be required in the following locations:
  - 11.1. Vertical openings not exceeding two stories with not more than four dwelling units per floor.
  - 11.2. Buildings protected throughout by an approved automatic sprinkler system.
  - 11.3. Buildings with not more than four dwelling units per floor where every sleeping room above the second floor is provided with direct access to a fire escape or other approved second exit by means of an approved exterior door or window having a sill height of not greater than 44 inches (1118 mm) and the building is protected throughout by an automatic fire alarm system complying with Section 604.4.

[Exceptions 12 - 14 not shown]

**603.2.2 Supplemental shaft and floor opening enclosure requirements.**

Where the work area on any floor exceeds 50 percent of that floor area, the enclosure requirements of Section 603.2 shall apply to vertical openings

other than stairways throughout the floor.

Exception: Vertical openings located in tenant spaces that are entirely outside the work area.

**603.2.3 Supplemental stairway enclosure requirements.**

Where the work area on any floor exceeds 50 percent of that floor area, stairways that are part of the means of egress serving the work area shall, at a minimum, be enclosed with smoke-tight construction on the highest work area floor and all floors below.

Exception: Where stairway enclosure is not required by the IBC or the International Fire Code.

7. (Building Materials and Elements) **603.4 Interior finish.**

The interior finish of walls and ceilings in exits and corridors in any work area shall comply with the requirements of the IBC.

Exception: Existing interior finish materials that do not comply with the interior finish requirements of the IBC shall be permitted to be treated with an approved fire-retardant coating in accordance with the manufacturer's instructions to achieve the required rating.

**603.4.1 Supplemental interior finish requirements.**

Where the work area on any floor exceeds 50 percent of the floor area, Section 603.4 shall also apply to the interior finish in exits and corridors serving the work area throughout the floor.

Exception: Interior finish within tenant spaces that are entirely outside the work area.

8. (Building Materials and Elements) **603.5 Guards.**

The requirements of Sections 603.5.1 and 603.5.2 shall apply in all work areas.

**603.5.1 Minimum requirement.**

Every portion of a floor, such as a balcony or a loading dock, that is more than 30 inches (762 mm) above the floor or grade below and is not provided with guards, or those in which the existing guards are judged to be in danger of collapsing, shall be provided with guards.

**603.5.2 Design.**

Where there are no guards or where existing guards must be replaced, the guards shall be designed and installed in accordance with the IBC.

9. (Fire Protection) **604.1 Scope.**

The requirements of this section shall be limited to work areas in which Level 2 alterations are being performed, and where specified they shall apply throughout the floor on which the work areas are located or otherwise beyond the work area.

10. (Fire Protection) **604.2 Automatic sprinkler systems.**

Automatic sprinkler systems shall be provided in accordance with the requirements of Sections 604.2.1 through 604.2.5. Installation requirements shall be in accordance with the IBC.

**604.2.1 High-rise buildings.**

In high-rise buildings, work areas shall be provided with automatic sprinkler protection where the work area is located on a floor that has a sufficient sprinkler water supply system from an existing standpipe or a sprinkler riser serving that floor.

**604.2.1.1 Supplemental automatic sprinkler system requirements.**

Where the work area on any floor exceeds 50 percent of that floor area, Section 604.2.1 shall apply to the entire floor on which the work area is located.

**Exception:** Tenant spaces that are entirely outside the work area and separated by fire barriers having a minimum 2-hour rating for Group H and a minimum 1-hour rating for all occupancy groups.

**604.2.2 All Groups.** In buildings with occupancies required by Chapter 9 of the IBC to be provided with sprinkler protection, work areas shall be provided with automatic sprinkler protection where all of the following conditions occur:

1. The work area is required to be provided with automatic sprinkler protection in accordance with the IBC as applicable to new construction;
2. The work area exceeds 50 percent of the floor area; and 3. The building has sufficient municipal water supply for design of a fire sprinkler system available to the floor without installation of a new fire pump.

**Exception:** Work areas in Group R occupancies three stories or less in height.

**604.2.2.1 Mixed uses.**

In work areas containing mixed uses, one or more of which requires automatic sprinkler protection in accordance with Section 604.2.2, such protection shall not be required throughout the work area provided that the uses requiring such protection are separated from those not requiring protection by fire-resistance-rated construction having a minimum 2-hour rating for Group H and a minimum 1 hour rating for all other occupancy groups.

**604.2.3 Windowless stories.**

Work located in a windowless story, as determined in accordance with the IBC, shall be sprinklered where the work area is required to be sprinklered under the provisions of the IBC for newly constructed buildings and the building has a sufficient municipal water supply available to the floor without installation of a new fire pump.

**604.2.4 Other required suppression systems.**

In buildings and areas listed in Table 903.2.13 of the IBC, work areas that include exits or corridors shared by more than one tenant or serving an occupant load greater than 30 shall be provided with sprinkler protection under the following conditions:

1. The work area is required to be provided with automatic sprinkler protection in accordance with the IBC applicable to new construction; and
2. The building has sufficient municipal water supply for design of a fire sprinkler system available to the floor without installation of a new fire pump.

**604.2.5 Supervision.**

Fire sprinkler systems required by this section shall be supervised by one of the following methods:

1. Approved central station system in accordance with NFPA 72;
2. Approved proprietary system in accordance with NFPA 72;
3. Approved remote station system of the jurisdiction in accordance with NFPA 72; or 4. Approved local alarm service that will cause the sounding of an alarm in accordance with NFPA 72.

**Exception:** Supervision is not required for the following:

1. Underground gate valve with roadway boxes.
2. Halogenated extinguishing systems.
3. Carbon dioxide extinguishing systems.

4. Dry and wet chemical extinguishing systems.
5. Automatic sprinkler systems installed in accordance with NFPA 13R where a common supply main is used to supply both domestic and automatic sprinkler systems and a separate shutoff valve for the automatic sprinkler system is not provided.

11. **604.3 Standpipes.**

Where the aggregate work area exceeds 50 percent of any single floor area and any work area is located more than 30 feet (15 240 mm) above or below the lowest level of fire department access, a standpipe system shall be provided. Standpipes shall have an approved fire department connection with hose connections at each floor level above or below the lowest level of fire department access. Standpipe systems shall be installed in accordance with the IBC.

Exceptions:

1. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gallons per minute (gpm) at 65 pounds per square inch (psi) (946 L/m at 448KPa) to the topmost floor in buildings equipped throughout with an automatic sprinkler system or a minimum of 500 gpm at 65 psi (1892 L/m at 448KPa) to the topmost floor in all other buildings. Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet (gpm/psi) (L/m/KPa) requirements of this exception for possible future extension of the standpipe.

2. The interconnection of multiple standpipe risers shall not be required.

12. **604.4 Fire alarm and detection.**

An approved fire alarm system shall be installed in accordance with Sections 604.4.1 through 604.4.3. Where automatic sprinkler protection is provided in accordance with Section 604.2 and is connected to the building fire alarm system, automatic heat detection shall not be required.

An approved automatic fire detection system shall be installed in accordance with the provisions of this code and NFPA 72. Devices, combinations of devices, appliances, and equipment shall be approved. The automatic fire detectors shall be smoke detectors, except that an approved alternative type of detector shall be installed in spaces such as boiler rooms, where products of combustion are present during normal operation in sufficient quantity to actuate a smoke detector.

**604.4.1 Occupancy requirements.**

A fire alarm system shall be installed in accordance with Sections 604.4.1.1 through 604.4.1.7. Existing alarm-notification appliances shall be automatically activated throughout the building. Where the building is not equipped with a fire alarm system, alarm-notification appliances within the work area shall be provided and automatically activated.

Exceptions:

1. Occupancies with an existing, previously approved fire alarm system.
2. Where selective notification is permitted, alarm notification appliances shall be automatically activated in the areas selected.

**604.4.1.1 Group E.**

A fire alarm system shall be installed in work areas of Group E occupancies as required by the International Fire Code for existing Group E occupancies.

**604.4.1.2 Group I-1.**

A fire alarm system shall be installed in work areas of Group I-1 residential care/assisted living facilities as required by the International Fire Code for existing Group I-1 occupancies.

**604.4.1.3 Group I-2.**

A fire alarm system shall be installed in work areas of Group I-2 occupancies as required by the International Fire Code for existing Group I-2 occupancies.

**604.4.1.4 Group I-3.**

A fire alarm system shall be installed in work areas of Group I-3 occupancies as required by the International Fire Code for existing Group I-3 occupancies.

**604.4.1.5 Group R-1.**

A fire alarm system shall be installed in Group R-1 occupancies as required by the International Fire Code for existing Group R-1 occupancies.

**604.4.1.6 Group R-2.**

A fire alarm system shall be installed in work areas of Group R-2 apartment buildings as required by the International Fire Code for existing Group R-2 occupancies.

**604.4.1.7 Group R-4.**

A fire alarm system shall be installed in work areas of Group R-4 residential care/assisted living facilities as required by the International Fire Code for existing Group R-4 occupancies.

**604.4.2 Supplemental fire alarm system requirements.**

Where the work area on any floor exceeds 50 percent of that floor area, Section 604.4.1 shall apply throughout the floor.

Exception: Alarm-initiating and notification appliances shall not be required to be installed in tenant spaces outside of the work area.

**604.4.3 Smoke alarms.**

Individual sleeping units and individual dwelling units in any work area in Group R-1, R-2, R-3, R-4, and I-1 occupancies shall be provided with smoke alarms in accordance with the International Fire Code.

Exception: Interconnection of smoke alarms outside of the rehabilitation work area shall not be required.

**(Means of Egress) 605.1 Scope.**

The requirements of this section shall be limited to work areas that include exits or corridors shared by more than one tenant within the work area in which Level 2 alterations are being performed, and where specified they shall apply throughout the floor on which the work areas are located or otherwise beyond the work area.

**13. (Means of Egress) 605.2 General.**

The means of egress shall comply with the requirements of this section.

**Exceptions:**

1. Where the work area and the means of egress serving it complies with Part IV if the 2005 Connecticut Statefire Safety Code.
2. For buildings constructed under a permit applied for on or after September 1, 1971, means of egress conforming to the requirements of the State Building Code under which the building was constructed shall be considered compliant means of egress providing that no unsafe conditions exist within the means of egress.

14. (Means of Egress) **605.3 Number of exits.**

The number of exits shall be in accordance with Sections 605.3.1 through 605.3.3.

**605.3.1 Minimum number.**

Every story utilized for human occupancy on which there is a work area that includes exits or corridors shared by more than one tenant within the work area shall be provided with the minimum number of exits based on the occupancy and the occupant load in accordance with the IBC. In addition, the exits shall comply with Sections 605.3.1.1 and 605.3.1.2.

**605.3.1.1 Single-exit buildings.**

Only one exit is required from buildings and spaces of the following occupancies:

1. In Group A, B, E, F, M, U, and S occupancies, a single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet (22 860 mm).
2. Group B, F-2, and S-2 occupancies not more than two stories in height that are not greater than 3,000 square feet per floor (279 m<sup>2</sup>), when the exit access travel distance does not exceed 75 feet (22 860 mm). The minimum fire-resistance rating of the exit enclosure and of the opening protection shall be 1 hour.
3. Open parking structures where vehicles are mechanically parked.
4. In buildings containing Group B, S2, or M occupancies, the required building features in Table 605.3.1(1) shall be provided based upon the highest story occupied by the specific use group.
5. In buildings containing Group R2 apartment or boarding houses or R3 occupancies, the required building features in Table 605.3.1.1 (2) shall be provided based upon the highest story occupied by the specific use group.
6. In Group R-2, H-4, H-5, and I occupancies and in rooming houses and childcare centers, a single exit is permitted in a one-story building with a maximum occupant load of 10 and the exit access travel distance does not exceed 75 feet (22 860 mm).
7. In buildings of Group R-2 occupancy that are equipped throughout with an automatic fire sprinkler system, a single exit shall be permitted from a basement or story below grade if every dwelling unit on that floor is equipped with an approved window providing a clear opening of at least 4 square feet (0.37 m<sup>2</sup>) in area, a minimum dimension of 18 inches (457 mm) in height with bottom of opening no higher than 4 feet 6 inches (1372 mm) in a basement.
8. In buildings of Group R-3 occupancy equipped throughout with an automatic fire sprinkler system, only one exit shall be required from

basements or stories below grade.

#### **605.3.1.2 Fire escapes required.**

When more than one exit is required, an existing or newly constructed fire escape complying with Section 605.3.1.2.1 shall be accepted as providing one of the required means of egress.

##### **605.3.1.2.1 Fire escape access and details.**

Fire escapes shall comply with all of the following requirements:

##### **605.3.1.2.2 Construction.**

The fire escape shall be designed to support a live load of 100 pounds per square foot (4788 Pa) and shall be constructed of steel or other approved noncombustible materials. Fire escapes constructed of wood not less than nominal 2 inches (51 mm) thick are permitted on buildings of Type V construction. Walkways and railings located over or supported by combustible roofs in buildings of Types III and IV construction are permitted to be of wood not less than nominal 2 inches (51 mm) thick.

##### **605.3.1.2.3 Dimensions.**

Stairs shall be at least 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm). Landings at the foot of stairs shall not be less than 40 inches (1016 mm) wide by 36 inches (914 mm) long and located not more than 8 inches (203 mm) below the door.

#### **605.3.2 Mezzanines.**

Mezzanines in the work area and with an occupant load of more than 50 or in which the travel distance to an exit exceeds 75 feet (22 860 mm) shall have access to at least two independent means of egress.

Exception: Two independent means of egress are not required where the travel distance to an exit does not exceed 100 feet (30 480 mm) and the building is protected throughout with an automatic sprinkler system.

(Amd) **605.3.3 Main Entrance – Group A.** In Group A occupancies renovated or altered to increase capacity that have a single main entrance, such main entrance shall also be the main exit. The main entrance/exit shall be of sufficient width to accommodate not less than two-thirds of the occupant load, but such width shall not be less than the total required width of all means of egress leading to the exit. The remaining exits shall be capable of providing at least one-half of the total required exit capacity.

**Exception:** In assembly occupancies where there is no well-defined main entrance and main exit or where multiple main entrances and main exits are provided, exits shall be permitted to be distributed around the perimeter of the building or space containing the assembly occupancy, provided that the total width of egress is not less than 100 per cent of the required width.

#### 15. (Means of Egress) **605.4 Egress doorways.**

Egress doorways in any work area shall comply with Sections 605.4.1 through



605.4.5.

**605.4.1 Two egress doorways required.**

Work areas shall be provided with two egress doorways in accordance with the requirements of Sections 605.4.1.1 and 605.4.1.2.

**605.4.1.1 Occupant load and travel distance.**

In any work area, all rooms and spaces having an occupant load greater than 50 or in which the travel distance to an exit exceeds 75 feet (22 860 mm) shall have a minimum of two egress doorways.

Exceptions:

1. Storage rooms having a maximum occupant load of 10.
2. Where the work area is served by a single exit in accordance with Section 605.3.1.1.

**605.4.1.2 Group I-2.**

In buildings of Group I-2 occupancy, any patient sleeping room or suite of patient rooms greater than 1,000 square feet (93 m<sup>2</sup>) within the work area shall have a minimum of two egress doorways.

**605.4.2 Door swing.**

In the work area and in the egress path from any work area to the exit discharge, all egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel.

**605.4.2.1 Supplemental requirements for door swing.**

Where the work area exceeds 50 percent of the floor area, door swing shall comply with Section 605.4.2 throughout the floor.

Exception: Means of egress within or serving only a tenant space that is entirely outside the work area.

**605.4.3 Door closing.**

In any work area, all doors opening onto an exit passageway at grade or an exit stair shall be self-closing or automatically closing by listed closing devices.

**Exceptions:**

1. Where exit enclosure is not required by the IBC.
2. Means of egress within or serving only a tenant space that is entirely outside the work area.

**605.4.3.1 Supplemental requirements for door closing.**

Where the work area exceeds 50 percent of the floor area, doors shall comply with Section 605.4.3 throughout the exit stair from the work area to the level of exit discharge.

**605.4.4 Panic hardware.**

In any work area, and in the egress path from any work area to the exit discharge, in buildings or portions thereof of Group A assembly occupancies with an occupant load greater than 100, all required exit doors equipped with latching devices shall be equipped with approved panic hardware.

#### **605.4.4.1 Supplemental requirements for panic hardware.**

Where the work area exceeds 50 percent of the floor area, panic hardware shall comply with Section 605.4.4 throughout the floor.

Exception: Means of egress within a tenant space that is entirely outside the work area.

#### **605.4.5 Emergency power source in Group I-3.**

Work areas in buildings of Group I-3 occupancy having remote power unlocking capability for more than 10 locks shall be provided with an emergency power source for such locks. Power shall be arranged to operate automatically upon failure of normal power within 10 seconds and for a duration of not less than 1 hour.

16. (Means of Egress) **605.5 Openings in corridor walls.**

Openings in corridor walls in any work area shall comply with Sections 605.5.1 through 605.5.4.

**Exception:** Openings in corridors where such corridors are not required to be rated in accordance with the IBC.

#### **605.5.1 Corridor doors.**

Corridor doors in the work area shall not be constructed of hollow core wood and shall not contain louvers. All dwelling unit or sleeping unit corridor doors in work areas in buildings of Groups R-1, R-2, and I-1 shall be at least 1 3/8-inch (35 mm) solid core wood or approved equivalent and shall not have any glass panels, other than approved wired glass or other approved glazing material in metal frames. All dwelling unit or sleeping unit corridor doors in work areas in buildings of Groups R-1, R-2, and I-1 shall be equipped with approved door closers. All replacement doors shall be 1 3/4-inch (45 mm) solid bonded wood core or approved equivalent, unless the existing frame will accommodate only a 1 3/8-inch (35 mm) door.

#### **Exceptions:**

1. Corridor doors within a dwelling unit or sleeping unit.
2. Existing doors meeting the requirements of HUD Guideline on Fire Ratings of Archaic Materials and Assemblies (IEBC Resource A) for a rating of 15 minutes or more shall be accepted as meeting the provisions of this requirement.
3. Existing doors in buildings protected throughout with an approved automatic sprinkler system shall be required only to resist smoke, be reasonably tight fitting, and shall not contain louvers.
4. In group homes with a maximum of 15 occupants and that are

protected with an approved automatic detection system, closing devices may be omitted.

5. Door assemblies having a fire-protection rating of at least 20 minutes.

#### **605.5.2 Transoms.**

In all buildings of Group I-1, R-1, and R-2 occupancy, all transoms in corridor walls in work areas shall either be glazed with 1 /4 -inch (6.4 mm) wired glass set in metal frames or other glazing assemblies having a fire-protection rating as required for the door and permanently secured in the closed position or sealed with materials consistent with the corridor construction.

#### **605.5.3 Other corridor openings.**

In any work area, any other sash, grill, or opening in a corridor and any window in a corridor not opening to the outside air shall be sealed with materials consistent with the corridor construction.

##### **605.5.3.1 Supplemental requirements for other corridor opening.**

Where the work area exceeds 50 percent of the floor area, Section 605.5.3 shall be applicable to all corridor windows, grills, sashes, and other openings on the floor.

**Exception:** Means of egress within or serving only a tenant space that is entirely outside the work area.

#### **605.5.4 Supplemental requirements for corridor openings.**

Where the work area on any floor exceeds 50 percent of the floor area, the requirements of Sections 605.5.1 through 605.5.3 shall apply throughout the floor.

#### **17. 605.6 Dead-end corridors.**

Dead-end corridors in any work area shall not exceed 35 feet (10 670 mm).

##### **Exceptions:**

1. Where dead-end corridors of greater length are permitted by the IBC.
2. In other than Group A and H occupancies, the maximum length of an existing dead-end corridor shall be 50 feet (15 240 mm) in buildings equipped throughout with an automatic fire alarm system installed in accordance with the IBC.
3. In other than Group A and H occupancies, the maximum length of an existing dead-end corridor shall be 70 feet (21 356 mm) in buildings equipped throughout with an automatic sprinkler system installed in accordance with the IBC.
4. In other than Group A and H occupancies, the maximum length of an existing, newly constructed, or extended dead-end corridor shall not exceed 50 feet (15 240 mm) on floors equipped with an automatic sprinkler system installed in accordance with the IBC.

#### **18. 605.7 Means-of-egress lighting.**

Means-of-egress lighting shall be in accordance with this section, as applicable.

**605.7.1 Artificial lighting required.**

Means of egress in all work areas shall be provided with artificial lighting in accordance with the requirements of the IBC.

**605.7.2 Supplemental requirements for means-of-egress lighting.**

Where the work area on any floor exceeds 50 percent of that floor area, means of egress throughout the floor shall comply with Section 605.7.1.

**Exception:** Means of egress within or serving only a tenant space that is entirely outside the work area.

19. **605.8 Exit signs.**

Exit signs shall be in accordance with this section, as applicable.

**605.8.1 Work areas.**

Means of egress in all work areas shall be provided with exit signs in accordance with the requirements of the IBC.

**605.8.2 Supplemental requirements for exit signs.**

Where the work area on any floor exceeds 50 percent of that floor area, means of egress throughout the floor shall comply with Section 605.8.1.

**Exception:** Means of egress within a tenant space that is entirely outside the work area.

20. **605.9 Handrails.**

The requirements of Sections 605.9.1 and 605.9.2 shall apply to handrails from the work area floor to the level of exit discharge.

**605.9.1 Minimum requirement.**

Every required exit stairway that is part of the means of egress for any work area and that has three or more risers and is not provided with at least one handrail, or in which the existing handrails are judged to be in danger of collapsing, shall be provided with handrails for the full length of the run of steps on at least one side. All exit stairways with a required egress width of more than 66 inches (1676 mm) shall have handrails on both sides.

**605.9.2 Design.**

Handrails required in accordance with Section 605.9.1 shall be designed and installed in accordance with the provisions of the IBC.

21. **605.10 Guards.**

The requirements of Sections 605.10.1 and 605.10.2 shall apply to guards from the work area floor to the level of exit discharge but shall be confined to the egress path of any work area.

**605.10.1 Minimum requirement.**

Every open portion of a stair, landing, or balcony that is more than 30 inches (762 mm) above the floor or grade below and is not provided with guards, or those portions in which existing guards are judged to be in danger of collapsing, shall be provided with guards.

### **605.10.2 Design.**

Guards required in accordance with Section 605.10.1 shall be designed and installed in accordance with the IBC.

22. (Accessibility) **606.1 General.**

A building, facility, or element that is altered shall comply with Section 506.

23. (Accessibility) **606.2 Stairs and escalators in existing buildings.**

In alterations where an escalator or stair is added where none existed previously, an accessible route shall be provided in accordance with Sections 1104.4 and 1104.5 of the IBC.

24. (Accessibility) **606.3 Dwelling units and sleeping units.**

Where Group I-1, I-2, I-3, R-1, R-2, or R-4 dwelling units or sleeping units are being added, the requirements of Section 1107 of the IBC for accessible units or Type A units and Chapter 9 of the IBC for accessible alarms apply only to the quantity of spaces being added.

25. (Structural) **607.1 General.**

Where alteration work includes installation of additional equipment that is structurally supported by the building or reconfiguration of space such that portions of the building become subjected to higher gravity loads as required by Tables 1607.1 and 1607.6 of the IBC, the provisions of this section shall apply.

26. (Structural) **607.2 Reduction of strength.**

Alterations shall not reduce the structural strength or stability of the building, structure, or any individual member thereof.

**Exception:** Such reduction shall be allowed as long as the strength and the stability of the building are not reduced to below the IBC levels.

27. (Structural) **607.3 New structural members.**

New structural members in alterations, including connections and anchorage, shall comply with the IBC.

28. (Structural) **607.4 Existing structural members.**

Existing structural components supporting additional equipment or subjected to additional loads based on IBC Tables 1607.1 and 1607.6 as a result of a reconfiguration of spaces shall comply with Sections 607.4.1 through 607.4.3.

#### **607.4.1 Gravity loads.**

Existing structural elements supporting any additional gravity loads as a result of additional equipment or space reconfiguration shall comply with the IBC.

#### **Exceptions:**

1. Structural elements whose stress is not increased by more than 5 percent.
2. Buildings of Group R occupancy with not more than five dwelling units or sleeping units used solely for residential purposes where the existing building and its alteration comply with the conventional light-frame construction methods of the IBC or the provisions of the

International Residential Code.

**607.4.2 Lateral loads.**

Buildings in which Level 2 alterations increase the seismic base shear by more than 5 percent shall comply with the structural requirements specified in Section 707.

**607.4.3 Snow drift loads.**

Any structural element of an existing building subjected to additional loads from the effects of snow drift as a result of additional equipment shall comply with the IBC.

**Exceptions:**

1. Structural elements whose stress is not increased by more than 5 percent.
2. Buildings of Group R occupancy with no more than five dwelling units or sleeping units used solely for residential purposes where the existing building and its alteration comply with the conventional light-frame construction methods of the IBC or the provisions of the International Residential Code.

29. (Electrical) **608.1 New installations.**

All newly installed electrical equipment and wiring relating to work done in any work area shall comply with the materials and methods requirements of Chapter 5.

**Exception:** Electrical equipment and wiring in newly installed partitions and ceilings shall comply with all applicable requirements of the ICC Electrical Code.

30. (Electrical) **608.2 Existing installations.**

Existing wiring in all work areas in Group A-1, A-2, A-5, H, and I occupancies shall be upgraded to meet the materials and methods requirements of Chapter 5.

31. (Electrical) **608.3 Residential occupancies.**

In Group R-2, R-3, and R-4 occupancies and buildings regulated by the International Residential Code, the requirements of Sections 608.3.1 through 608.3.7 shall be applicable only to work areas located within a dwelling unit.

**608.3.1 Enclosed areas.**

All enclosed areas, other than closets, kitchens, basements, garages, hallways, laundry areas, utility areas, storage areas, and bathrooms shall have a minimum of two duplex receptacle outlets or one duplex receptacle outlet and one ceiling or wall-type lighting outlet.

**608.3.2 Kitchens.**

Kitchen areas shall have a minimum of two duplex receptacle outlets.

**608.3.3 Laundry areas.**

Laundry areas shall have a minimum of one duplex receptacle outlet located near the laundry equipment and installed on an independent circuit.

#### **608.3.4 Ground fault circuit interruption.**

Newly installed receptacle outlets shall be provided with ground fault circuit interruption as required by the ICC Electrical Code.

#### **608.3.5 Minimum lighting outlets.**

At least one lighting outlet shall be provided in every bathroom, hallway, stairway, attached garage, and detached garage with electric power, and to **illuminate outdoor entrances and exits.**

#### **608.3.6 Utility rooms and basements.**

At least one lighting outlet shall be provided in utility rooms and basements where such spaces are used for storage or contain equipment requiring service.

#### **608.3.7 Clearance for equipment.**

Clearance for electrical service equipment shall be provided in accordance with the ICC Electrical Code.

32. (Mechanical) **609.1 Reconfigured or converted spaces.**

All reconfigured spaces intended for occupancy and all spaces converted to habitable or occupiable space in any work area shall be provided with natural or mechanical ventilation in accordance with the International Mechanical Code.

**Exception:** Existing mechanical ventilation systems shall comply with the requirements of Section 609.2.

33. (Mechanical) **609.2 Altered existing systems.**

In mechanically ventilated spaces, existing mechanical ventilation systems that are altered, reconfigured, or extended shall provide not less than 5 cubic feet per minute (cfm) (0.0024 m<sup>3</sup>/s) per person of outdoor air and not less than 15 cfm (0.0071 m<sup>3</sup>/s) of ventilation air per person; or not less than the amount of ventilation air determined by the Indoor Air Quality Procedure of ASHRAE 62.

34. (Mechanical) **609.3 Local exhaust.**

All newly introduced devices, equipment, or operations that produce airborne particulate matter, odors, fumes, vapor, combustion products, gaseous contaminants, pathogenic and allergenic organisms, and microbial contaminants in such quantities as to affect adversely or impair health or cause discomfort to occupants shall be provided with local exhaust.

35. (Plumbing) **610.1 Minimum fixtures.**

Where the occupant load of the story is increased by more than 20 percent, plumbing fixtures for the story shall be provided in quantities specified in the International Plumbing Code based on the increased occupant load.

G. **Chapter 5 - Alterations -Level 1**

1. **501.1 Scope.**

Level 1 alterations as described in Section 303 shall comply with the requirements of this chapter. Level 1 alterations to historic buildings shall comply with this chapter, except as modified in Chapter 10.

2. **501.2 Conformance.**

An existing building or portion thereof shall not be altered such that the building becomes less safe than its existing condition.

Exception: Where the current level of safety or sanitation is proposed to be reduced, the portion altered shall conform to the requirements of the IBC.

3. **501.3 Flood hazard areas.**

In flood hazard areas, alterations that constitute substantial improvement shall require that the building comply with Section 1612 of the IBC.

4. (Special Use and Occupancy) **502.1 General.**

Alteration of buildings classified as special use and occupancy as described in the IBC shall comply with the requirements of Section 501.1 and the scoping provisions of Chapter 1 where applicable.

5. (Building Elements and Materials) **503.1 Interior finishes.**

All newly installed interior finishes shall comply with the flame spread requirements of the IBC.

6. (Building Elements and Materials) **503.2 Carpeting.**

New carpeting used as an interior floor finish material shall comply with the radiant flux requirements of the IBC.

7. (Building Elements and Materials) **503.3 Materials and methods.**

All new work shall comply with materials and methods requirements in the NFPA 70, IBC, IMC, and IPC, as applicable, that specify material standards, detail of installation and connection, joints, penetrations, and continuity of any element, component, or system in the building.

[FG] **503.3.1 International Fuel Gas Code.** The following sections of the *International Fuel Gas Code* shall constitute the fuel gas materials and methods requirements for Level 1 alterations.

1. All of Chapter 3, entitled "General Regulations," except Sections 303.7 and 306.

2. All of Chapter 4, entitled "Gas Piping Installations," except Sections 401.8 and 402.3.

2.1. Sections 401.8 and 402.3 shall apply when the work being performed increases the load on the system such that the existing pipe does not meet the size required by code. Existing systems that are modified shall not require resizing as long as the load on the system is not increased and the system length is not increased even if the altered system does not meet code minimums.

3. All of Chapter 5, entitled "Chimneys and Vents."

4. All of Chapter 6, entitled "Specific Appliances."

8. (Fire Protection ) **504.1 General.**

Alterations shall be done in a manner that maintains the level of fire protection



provided.

9. (Means of Egress) **505.1 General.**

Means of egress for buildings undergoing alteration shall comply with the requirements of Section 501.1 and the scoping provisions of Chapter 1 where applicable.

10. (Add) (Means of Egress) **505.2 Minimum standards.** In addition to the requirements of this code, means of egress in existing buildings shall meet the requirements of the provisions of Part IV of the Connecticut State Fire Safety Code for the proposed occupancy.

11. (Accessibility) **506.1 General.**

A building, facility, or element that is altered shall comply with the applicable provisions in Sections 506.1.1 through 506.1.12, Chapter 11 of the IBC, and ICC A117.1 unless technically infeasible. Where compliance with this section is technically infeasible, the alteration shall provide access to the maximum extent technically feasible.

**Exceptions:**

1. The altered element or space is not required to be on an accessible route unless required by Section 506.2.
2. Accessible means of egress required by Chapter 10 of the IBC are not required to be provided in existing buildings and facilities.
3. Type B dwelling or sleeping units required by Section 1107 of the IBC are not required to be provided in existing buildings and facilities.

**506.1.1 Entrances.**

Where an alteration includes alterations to an entrance, and the building or facility has an accessible entrance on an accessible route, the altered entrance is not required to be accessible unless required by Section 506.2. Signs complying with Section 1110 of the IBC shall be provided.

**506.1.2 Elevators.**

Altered elements of existing elevators shall comply with ASME A17.1, A17.1a, A17.1s and ICC A117.1. Such elements shall also be altered in elevators programmed to respond to the same hall call control as the altered elevator.

**506.1.3 Platform lifts.** Platform (wheelchair) lifts complying with ICC A117.1 and installed in accordance with ASME A18.1 shall be permitted as a component of an accessible route.

**506.1.4 Ramps.**

Where steeper slopes than allowed by Section 1010.2 of the IBC are necessitated by space limitations, the slope of ramps in or providing access to existing buildings or facilities shall comply with Table 506.1.4.

**506.1.5 Dining areas.**

An accessible route to raised or sunken dining areas or to outdoor seating areas is not required provided that the same services and decor are provided in an accessible space usable by any occupant and not restricted to use by people with a disability.

#### **506.1.6 Performance areas.**

Where it is technically infeasible to alter performance areas to be on an accessible route, at least one of each type of performance area shall be made accessible.

#### **506.1.7 Jury boxes and witness stands.**

In alterations, accessible wheelchair spaces are not required to be located within the defined area of raised jury boxes or witness stands and shall be permitted to be located outside these spaces where ramp or lift access poses a hazard by restricting or projecting into a required means of egress.

#### **506.1.8 Dwelling or sleeping units.**

Where Group I-1, I-2, I-3, R-1, R-2, or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the IBC for accessible or Type A units and Chapter 9 of the IBC for accessible alarms apply only to the quantity of the spaces being altered.

#### **506.1.9 Toilet rooms.**

Where it is technically infeasible to alter existing toilet and bathing facilities to be accessible, an accessible unisex toilet or bathing facility is permitted. The unisex facility shall be located on the same floor and in the same area as the existing facilities.

#### **506.1.10 Dressing, fitting, and locker rooms.**

Where it is technically infeasible to provide accessible dressing, fitting, or locker rooms at the same location as similar types of rooms, one accessible room on the same level shall be provided. Where separate sex facilities are provided, accessible rooms for each sex shall be provided. Separate sex facilities are not required where only unisex rooms are provided.

#### **506.1.11 Thresholds.**

The maximum height of thresholds at doorways shall be 3/4 inch (19.1 mm). Such thresholds shall have beveled edges on each side.

#### **506.1.12 Extent of application.**

An alteration of an existing element, space, or area of a building or facility shall not impose a requirement for greater accessibility than that which would be required for new construction. Alterations shall not reduce or have the effect of reducing accessibility of a building, portion of a building, or facility.

### **12. (Accessibility) 506.2 Alterations affecting an area containing a primary function.**

Where an alteration affects the accessibility to, or contains an area of, primary function, the route to the primary function area shall be accessible. The

accessible route to the primary function area shall include toilet facilities or drinking fountains serving the area of primary function. For the purposes of complying with this section, an area of primary function shall be defined by applicable provisions of 49 CFR Part 37.43© or 28 CFR Part 36.403.

**Exceptions:**

1. The costs of providing the accessible route are not required to exceed 20 percent of the costs of the alterations affecting the area of primary function.
2. This provision does not apply to alterations limited solely to windows, hardware, operating controls, electrical outlets, and signs.
3. This provision does not apply to alterations limited solely to mechanical systems, electrical systems, installation or alteration of fire protection systems, and abatement of hazardous materials.
4. This provision does not apply to alterations undertaken for the primary purpose of increasing the accessibility of an existing building, facility, or element.

13. (Structural) **507.1 General.**

Where alteration work includes replacement of equipment that is supported by the building or where a reroofing permit is required, the structural provisions of this section shall apply.

14. (Structural) **507.2 Design criteria.**

Existing structural components supporting alteration work shall comply with this section.

**507.2.1 Replacement of roofing or equipment.**

Where replacement of roofing or equipment results in additional dead loads, structural components supporting such reroofing or equipment shall comply with the vertical load requirements of the IBC.

**Exceptions:**

1. Structural elements whose stress is not increased by more than 5 percent.
2. Buildings constructed in accordance with the International Residential Code or the conventional construction methods of the IBC and where the additional dead load from the equipment is not increased by more than 5 percent.

15. (Structural) **507.3 Roof diaphragm.**

Where roofing materials are removed from more than 50 percent of the roof diaphragm of a building or section of a building where the roof diaphragm is a part of the main windforce-resisting system the integrity of the roof diaphragm shall be evaluated and if found deficient because of insufficient or deteriorated connections, such connections shall be provided or replaced.

H. **Chapter 4 - Repairs**

1. **401.1 Scope.**

Repairs as described in Section 302 shall comply with the requirements of this chapter. Repairs to historic buildings shall comply with this chapter, except as modified in Chapter 10.

2. **401.2 Permitted materials.**

Except as otherwise required herein, work shall be done using materials permitted by the applicable code for new construction or using like materials such that no hazard to life, health or property is created.

3. **401.3 Conformance.**

The work shall not make the building less conforming to the building, plumbing, mechanical, electrical or fire codes of the jurisdiction, or to alternative materials, design and methods of construction, or any previously approved plans, modifications, alternative methods, or compliance alternatives, than it was before the repair was undertaken.

4. **401.4 Flood hazard areas.**

In flood hazard areas, repairs that constitute substantial improvement shall require that the building comply with Section 1612 of the IBC.

5. **402.1 General.**

Repair of buildings classified as special use or occupancy as described in the IBC shall comply with the requirements of this chapter.

6. (Building Elements and Materials) **403.1 Hazardous materials.**

Hazardous materials that are no longer permitted, such as asbestos and lead-based paint, shall not be used.

7. (Building Elements and Materials) **403.2 Glazing in hazardous locations.**

Replacement glazing in hazardous locations shall comply with the safety glazing requirements of the IBC or International Residential Code as applicable.

**Exception:** Glass block walls, louvered windows, and jalousies repaired with like materials.

8. (Fire Protection) **404.1 General.**

Repairs shall be done in a manner that maintains the level of fire protection provided.

9. (Means of Egress) **405.1 General.**

Repairs shall be done in a manner that maintains the level of protection provided for the means of egress.

10. (Accessibility) **406.1 General.**

Repairs shall be done in a manner that maintains the level of accessibility provided.

11. (Structural) **407.1 General.**

Repairs of structural elements shall comply with this section.

**407.1.1 Seismic evaluation and design.**

Seismic evaluation and design of an existing building and its components shall be based on the assumed forces related to the response

of the structure to earthquake motions.

#### **407.1.1.1 Evaluation and design procedures.**

The seismic evaluation and design of an existing building shall be based on the procedures specified in the International Building Code, Appendix A of this code (GSREB), ASCE 31 or FEMA 356.

#### **407.1.1.2 IBC level seismic forces.**

When seismic forces are required to meet the IBC level, they shall be based on 100 percent of the values in the IBC or FEMA 356. Where FEMA 356 is used, the FEMA 356 Basic Safety Objective (BSO) shall be used for buildings in Seismic Use Group I. For buildings in other Seismic Use Groups the applicable FEMA 356 performance levels shown in Table 407.1.1.2 for BSE-1 and BSE-2 Earthquake Hazard Levels shall be used.

#### **407.1.1.3 Reduced IBC level seismic forces.**

When seismic forces are permitted to meet reduced IBC levels, they shall be based on 75 percent of the assumed forces prescribed in the IBC, applicable chapters in Appendix A of this code (GSREB), the applicable performance level of ASCE 31 as shown in Table 407.1.1.2, or the applicable performance level for the BSE-1 Earthquake Hazard Level of FEMA 356 shown in Table 407.1.1.2.

#### **407.1.2 Wind design.**

Wind design of existing buildings shall be based on the procedures specified in the IBC or International Residential Code as applicable.

#### **12. (Structural) 407.2 Reduction of strength.**

Repairs shall not reduce the structural strength or stability of the building, structure, or any individual member thereof.

**Exception:** Such reduction shall be allowed provided the capacity is not reduced to below the IBC levels.

#### **13. (Structural) 407.3 Damaged buildings.**

Damaged buildings shall be repaired in accordance with this section.

##### **407.3.1 New structural frame members.**

New structural frame members used in the repair of damaged buildings, including anchorage and connections, shall comply with the IBC.

**Exception:** For the design of new structural frame members connected to existing structural frame members, the use of reduced IBC level seismic forces as specified in Section 407.1.1.3 shall be permitted.

##### **407.3.2 Substantial structural damage.**

Buildings that have sustained substantial structural damage shall comply with this section.

#### **407.3.2.1 Engineering evaluation and analysis.**

An engineering evaluation and analysis that establishes the structural adequacy of the damaged building shall be prepared by a registered design professional and submitted to the code official. The evaluation and analysis may assume that all damaged structural elements and systems have their original strength and stiffness. The seismic analysis shall be based on one of the procedures specified in Section 407.1.1.

##### **407.3.2.1.1 Extent of repair.**

The evaluation and analysis shall demonstrate that the building, once repaired, complies with the wind and seismic provisions of the IBC.

**Exception:** The seismic design level for the repair design shall be the higher of the Building Code in effect at the time of original construction or reduced IBC level seismic forces as specified in Section 407.1.1.3.

#### **407.3.3 Below substantial structural damage.**

Repairs to buildings damaged to a level below the substantial structural damage level as defined in Section 202 shall be allowed to be made with the materials, methods, and strengths in existence prior to the damage unless such existing conditions are dangerous as defined in Chapter 2. New structural frame members as defined in Chapter 2 shall comply with Section 407.3.1.

#### **407.3.4 Other uncovered structural elements.**

Where in the course of conducting repairs other uncovered structural elements are found to be unsound or otherwise structurally deficient, such elements shall be made to conform to the requirements of Section 407.3.2.1.1.

#### **407.3.5 Flood hazard areas.**

In flood hazard areas, damaged buildings that sustain substantial damage shall be brought into compliance with Section 1612 of the IBC.

#### **14. (Electrical) 408.1 Material.**

Existing electrical wiring and equipment undergoing repair shall be allowed to be repaired or replaced with like material.

##### **Exceptions:**

1. Replacement of electrical receptacles shall comply with the applicable requirements of Section 406.3(D) of NFPA 70.
2. Plug fuses of the Edison-base type shall be used for replacements only where there is no evidence of over fusing or tampering per applicable requirements of Section 240.51(B) of NFPA 70.
3. For replacement of nongrounding-type receptacles with grounding-type receptacles and for branch circuits that do not have an equipment grounding conductor in the branch circuitry, the grounding conductor of a grounding-type receptacle outlet shall be permitted to be

grounded to any accessible point on the grounding electrode system, or to any accessible point on the grounding electrode conductor in accordance with Section 250.130© of NFPA 70.

4. Non-“hospital grade” receptacles in patient bed locations of Group I-2 shall be replaced with “hospital grade” receptacles, as required by NFPA 99 and Article 517 of NFPA 70.

5. Frames of electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers, and outlet or junction boxes that are part of the existing branch circuit for these appliances shall be permitted to be grounded to the grounded circuit conductor in accordance with Section 250.140 of NFPA 70.

15. (Mechanical) **409.1 General.**

Existing mechanical systems undergoing repair shall comply with Section 401.1 and the scoping pro-visions of Chapter 1 where applicable.

16. (Plumbing) **410.1 Materials.**

The following plumbing materials and supplies shall not be used:

1. Sheet and tubular copper and brass trap and tailpiece fittings less than the minimum wall thickness of .027 inch (0.69 mm).

2. Solder having more than 0.2-percent lead in the repair of potable water systems.

3. Water closets having a concealed trap seal or an unventilated space or having walls that are not thoroughly washed at each discharge in accordance with ASME A112.19.2M.

4. The following types of joints shall be prohibited:

4.1. Cement or concrete joints.

4.2. Mastic or hot-pour bituminous joints.

4.3. Joints made with fittings not approved for the specific installation.

4.4. Joints between different diameter pipes made with elastomeric rolling O-rings.

4.5. Solvent-cement joints between different types of plastic pipe.

4.6. Saddle-type fittings.

5. The following types of traps are prohibited:

5.1. Traps that depend on moving parts to maintain the seal.

5.2. Bell traps.

5.3. Crown-vented traps.

5.4. Traps not integral with a fixture and that depend on interior partitions for the seal, except those traps constructed of an approved material that is resistant to corrosion and degradation.

17. (Plumbing) **410.2 Water closet replacement.**

When any water closet is replaced, the replacement water closet shall comply with the International Plumbing Code. The maximum water consumption flow

rates and quantities for all replaced water closets shall be 1.6 gallons (6 L) per flushing cycle.

**Exception:** Blowout-design water closets [3.5 gallons (13 L) per flushing cycle].

[NOTE THAT THE WAY TO NAVIGATE THE IEBC IS MOSTLY BACKWARDS!!!!]

END OF IEBC OUTLINE